

WHAT IS CLAIMED IS:

5 1. A high-resolution still picture decoding device, comprising:
a memory device having a bit-stream buffer, a temporary buffer
and a frame buffer, the bit-stream buffer being adapted to store bit-stream
data from a storage media; and

10 a decoding means for decoding the bit-stream data in the bit-
stream buffer and storing decoded frame data in the frame buffer or the
temporary buffer, such that, when a still picture is to be displayed, the
frame buffer stores part of the frame data corresponding to the still
picture and the temporary buffer is provided to store the other frame data
which is decoded in real time as the still picture is displayed, and the data
in the frame buffer and temporary buffer is output for displaying a high-
resolution still picture.

15 2. The high-resolution still picture decoding device as claimed in
claim 1, wherein the frame buffer stores only a half of the frame data
corresponding to the picture, and the temporary buffer has a memory
space less than that of the frame buffer.

20 3. The high-resolution still picture decoding device as claimed in
claim 1, wherein the frame data in the bit-stream buffer is represented by
multiple macroblock lines after being decoded by the decoding means.

25 4. The high-resolution still picture decoding device as claimed in
claim 3, wherein the frame buffer only stores part of the macroblock line
corresponding to the frame data of the still picture, and the temporary
buffer has a memory space for storing at least one macroblock line.

6. The high-resolution still picture decoding device as claimed in claim 4, wherein the frame buffer stores even numbered macroblock lines corresponding to the frame data of the picture.

5 6. The high-resolution still picture decoding device as claimed in claim 5, wherein the macroblock lines in the temporary buffer has a height half of the height of the macroblock lines in the frame buffer.

7. The high-resolution still picture decoding device as claimed in claim 5, wherein, for a field of a displaying still picture and in a time point of switching to display the still picture, the bit-stream of a frame from the bit-stream buffer is processed by a first decoding process in one field display time of a top field to decode the even numbered macroblock lines, and the decoded frame data is stored in the frame buffer, while in one field display time of the other fields, the bit-stream of a frame from the bit-stream buffer is processed by a second decoding process to
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15 decode the odd numbered macroblock lines.

8. The high-resolution still picture decoding device as claimed in claim 1, wherein the second decoding process is repeatedly executed and there are two pointers for setting a picture range in which read operations of bit-stream data can be cyclically repeated.

20 9. The high-resolution still picture decoding device as claimed in claim 8, wherein the decoding means has an image decoder which comprises a variable-length decoder, a run-length decoder, an inverse quantizer and an inverse discrete cosine transform unit, and data read out from bit-stream buffer is processed by the variable-length decoder, run-length decoder, inverse quantizer, and inverse discrete cosine transform
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unit sequentially for being stored in frame buffer or temporary buffer.

10. The high-resolution still picture decoding device as claimed in claim 9, wherein the variable-length decoder can discard unnecessary macroblock lines for decoding.

5 11. The high-resolution still picture decoding device as claimed in claim 9, wherein the image decoder further comprises a DC predictor for preserving DC component of the bit-stream data processed by the variable-length decoder.

10 12. The high-resolution still picture decoding device as claimed in claim 9, wherein, only data of one field is determined by the inverse discrete cosine transform for being stored into the temporary buffer.

13. The high-resolution still picture decoding device as claimed in claim 1, further comprising a multiplexer which select data in the frame buffer or the temporary buffer to output.

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